HEALTH EDUCATION: A SYSTEMIC REVIEW OF THE MOST EFFECTIVE APPROACHES TO HEALTH EDUCATION FOR OLDER ADULTS

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ABSTRACT

Health education is a method of cultivating knowledge about health topics. For older adults, common health education topics include fall prevention, nutrition, exercise, and mental health. This systematic literature review seeks to determine the most effective approach to health education for older adults. The searching method consisted of seven key words that were accompanied by 10 descriptor terms that further specified relevant search results. After assessing articles based on inclusion criteria, a total of 15 articles took part in the final review. The results of the articles demonstrated improved health education for older adults with the incorporation of technology, gamification, and group-based interventions. Establishing the positive outcomes of these interventions is a starting point for developing advanced interventions for older adults.

INTRODUCTION

Health education is a communication strategy utilized to enhance the health literacy, knowledge, and life skills of populations. Health promotion refers to the process of empowering individuals by increasing their control over health decisions, and it strives to improve overall health (WHO, n.d.). It is necessary for the physical, mental, and spiritual wellbeing of every living being. Without the promotion of behaviors that benefit health, society would fall prey to numerous illnesses, chronic conditions, transmissible diseases, and physical misfortunes among many other disadvantageous circumstances. Effective health education has a multitude of advantages. For starters, health education reduces healthcare spending as less people need to visit their providers (Greene et al., 2019). When more people become knowledgeable of preventive care and healthy behaviors, they avoid ailments that cause them to visit their doctor. It also enables individual agency by allowing people to make more educated and informed health decisions about themselves (Hahn and Truman, 2015). Evidently, health education is an efficient tool utilized to positively shape the health status of every individual it reaches. The implementation of health education depends on many things. Chiefly, the population that is being educated should largely impact how interventions are carried out.

Many effective health interventions target the school system. According to Pulimento and others, adolescence and early childhood are prime times to reach children because it is when most health behaviors are learned (Pulimeno et al., 2020). Reaching individuals at a young age often prevents them from carrying developed unhealthy behaviors into their future routines. For this reason, a lot of health education programs and interventions accommodate mental and physical aptitudes of young children, and is also why many interventions are implemented at schools. Children are already immersed in a learning environment at school, so adding health interventions in that atmosphere is a convenient way to educate about health topics. On the other hand, when comparing the amount of health education initiatives geared toward older adults to those targeting children, there exists a distinct gap of health promotion that older adults are not receiving.

Broadening health education efforts to older communities would benefit a population in need. Older adults are more vulnerable to degenerative diseases, risk of bone-breaking, and more advanced

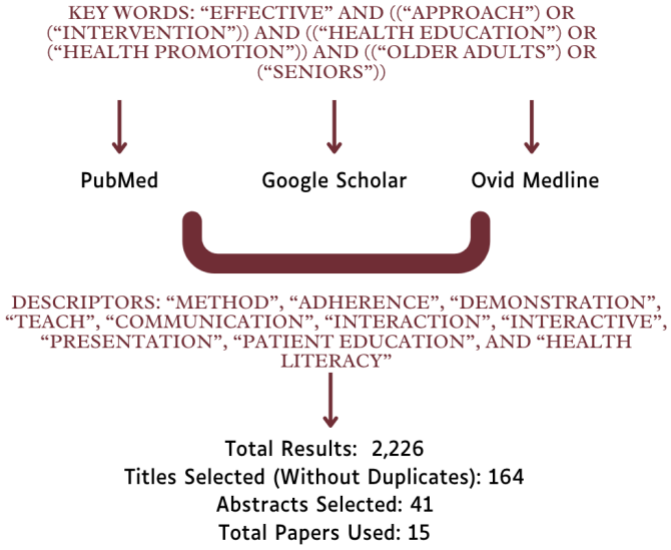
chronic illnesses such as diabetes among others. According to White and Verdusco, all senses weaken as a result of the aging process which leads to a communication barrier. (White and Verdusco, 2018). Further, older adults will greatly benefit from not just education alone, but education that is catered to their needs and capabilities. With the global increase of the older adult population, researchers emphasize that more health education interventions for this population need to be prioritized (Marcus-Varwijk et al., 2019). Additionally, outcomes of health education need to be closely observed. This will result in a detailed understanding of how older adults learn about health issues best. Further, it is important to not only increase the amount of health education programs for older adults, but to also make sure that they are effective and are reaching their target audience needs.

The objective of this systematic literature review is to determine the most effective approach to promoting health education for older adults. These findings will further contribute to health educators by offering insight into how to specialize education for older adults. It will also contribute to healthcare workers, so they know how to successfully advise their patients. Most importantly, this research will contribute to older adults because interventions will improve at aiding this population in understanding health information.

METHODS

This review consists of various research articles discovered in the results of three databases: PubMed, Google Scholar, and Medline. The collection of articles is comprised of both qualitative and quantitative research. The primary search string utilized to locate relevant research incorporated key words "Effective" AND (("Approach") OR ("Intervention")) AND (("Health Education") OR ("Health Promotion")) AND (("Older Adults") OR ("Seniors")). In addition to this search string, 10 descriptor words were included further to specify resulting findings. The descriptor words used in this systematic literature search were "method," "adherence," "demonstration," "teach," "communication," "interaction," "interactive," "presentation," "patient education," and "health literacy." In total, these keywords generated 2,226 results.

Regarding the inclusion criteria for this review, accepted papers had to detail at least one educational intervention, needed to prioritize the needs of older adults ages 65 and over, and needed to have been published within the most recent five-year period from 2017 to 2022. No language limiter was applied. Duplicates were removed and the titles of the results were evaluated based on these criteria, leaving 164 results. The abstracts of these articles were then observed, and depending on their relevance to this study, some were removed. After this step, 41 articles remained. Finally, the papers were read in full to discard any irrelevant material. The most common reason for exclusion was that the interventions present in the study resulted in little or no improvement of education for this population. At the end of this process, 15 papers were selected to take part in this systematic review.



RESULTS

Study Characteristics

Out of the 15 papers selected for this systematic review, only one paper was published outside of the United States. One out of the 15 papers was published in Portuguese, whereas the others were published in English. Each study was published between 2017 and 2022. Two of the papers were published in 2017, four in 2018, six in 2019, four in 2020, and no studies were published in 2021 or 2022. The studies and reviews were conducted in the USA, Turkey, Australia, Denmark, China, South Korea, Thailand, and Brazil. The authors are mainly nursing, medicine, public health and health sciences, psychology, and physical therapy among others.

Table: Main Findings

Year	Authors	Article Type	Main Findings	Country
2017	Leung et al.	Experimental Study	Participants in the video group of an intervention demonstrated improvements in frequency of screenings for colorectal cancer. They also demonstrated trust in the screening results.	China
2017	Ahn et al.	Quasi-experimental Study	Older adults benefited from individualisation of interventions, counseling programs, and community-based interventions.	South Korea
2018	Woda et al.	Qualitative Study	Photovoice was easily implemented, gave power and control to participants, and raised awareness of important topics such as mental health. It was appropriate for African American older adults with heart failure.	USA
2018	Valenzuela et al.	Systematic Review	Adherence rates for older adults undergoing rehabilitation were higher with technology-based exercise and education interventions (exergames) than that of traditional exercise programs.	USA
2018	Khong et al.	Within-stage mixed-model study	Using multimedia resources produces an enhanced learning environment. Older adults found it beneficial to come up with checklists and an action plan so they had a task they could focus on.	Australia
2018	Matz-Costa et al.	Randomized Control Trial	Communication with mentors via telephone calls kept older adult participants engaged and helped them feel supported.	USA
2019	Niclasen et al.	Systematic Review	Multiple articles demonstrated a pattern in which interventions with social elements or group-based education had a positive effect on older adults' mental health. Participants found these interventions more meaningful, which had a positive effect on their subjective life quality, life satisfaction, and overall understanding.	Denmark

2019	Sá et al.	Integrative Review	Software and video for individual interventions had more positive effects than printed material. Literacy levels of population should be considered when producing technological education interventions.	Brazil
2019	Ilgaz & Gözüm	Systematic Review, meta-analysis	One study stated that interventions related to preparing meals and eating together increased energy intake and created a shared mealtime. This increased the self-efficacy of the older adults.	Turkey
2019	Wong et al.	Randomized Control Trial	The implementation of a group-based community self-care program enhanced life quality and medication adherence of older adults. It also reduced health service utilizations.	China
2019	Long & White	Experimental Study	The utilization of music and music videos helped suffering dementia patients recall memories and improved social interactivity.	USA
2020	Phirom et al.	Randomized Control Trial	12 weeks of an interactive game-based training program reduced fall risk. It augmented fall risk factors such as speed processing and body sway, global cognitive performance, and dual-task performance.	Thailand
2020	Pacheco et al.	Systematic Review	Exergames improved balance and mobility in older adults without neurological disorders and motivated participants to maintain the performance of balance exercises. Exerames could be significant for geriatric rehabilitation.	USA
2020	Flint et al.	Experimental Study	Fall Prevention Bingo (FPB) was an effective and fun tool for educating community-dwelling older adults. It expanded knowledge of fall risks and strategies to prevent falls. Participants revealed they were likely to attend more FPB sessions.	USA
2020	Chen et al.	Systematic Review, meta-analysis	The level of BP in older adults with hypertension in the health education group, which consisted of group education, was significantly lower compared with those in the usual care group.	China

After the analysis of the 15 selected documents, the three categories that have been distinguished from the papers are 1) technology, 2) gamification, and 3) group-based education. Technology is machinery and electronics that are developed from scientific knowledge. The next category, gamification, refers to the application of characteristics of gameplay to other domains. In this case, gamification is utilized to promote health education in older adults. The last category is group-based education. This is when a body of individuals learns together and engages in open discussion together. One paper covered

multiple categories: technology and group-based education. With the one paper overlapping, six papers covered technology, four covered gamification, and six addressed group-based education.

Importantly, some of the studies and reviews targeted specific health conditions within the older adult population such as hypertension, colorectal cancer, and dementia among others. Regardless, all of the papers were involved in identifying health education interventions for these groups.

DISCUSSION

Use of Technology to Educate Older Adults

Although older adults are an age group less familiar with technology, interventions have found effective methods of incorporating electronics into health education. Woda et al. 2018 investigated the effect of the photovoice method on older adult engagement in health education discussion. Photovoice is a technological strategy in which participants are provided cameras and are asked to take pictures of visuals that embody their personal experiences (Woda et al., 2018). In this particular qualitative study, participants took pictures of significant parts of their daily lives and had group meetings where they would discuss the pictures. They would ask themselves how each picture contributed to their health. This method proved effective as its implementation was simple and gave power and control to the participants. The pictures produced by the cameras were beneficial to their understanding of their own self-care behaviors. According to a study by Leung et al. (2017), participants of an experimental study displayed more sigmoidoscopy and colonoscopy screenings after watching a three minute nurse-delivered video detailing multiple topics including colorectal cancer prognosis, statistics, symptoms, risk factors, screening tests, benefits and potential harms of screenings, and treatments (Leung et al., 2017). Participants in the video-group of this experimental study demonstrated more screening effectiveness than participants who viewed a 30-second cartoon and an 11-page pamphlet that delineated the same information. Subsequently, videos and e-learning can benefit older adults' understanding of preventive health information.

Another study further supports the effect of technology on health education by highlighting that traditional lecturing does not always show high levels of behavior maintenance. Khong et al. (2018) observed the perspectives of health education experts on multiple health education presentations tailored toward older adults. The experts agreed that electronic resources should be applied to facilitate older adult understanding. The use of videos, for instance, was highlighted as an opportunity to connect to the personal plans of the audience (Khong et al., 2018). Generally, experts emphasized the importance of multimedia in health education interventions. The use of multimedia produces an environment that is conducive to health education for this population. Matz-Costa et al. (2018) also articulated the use of electronics in interventions. In the 2018 study, participants were assigned peet mentors that they communicated with via telephone in the midst of the intervention process. The mentors found that the telephone sessions kept the participants engaged, were highly productive, efficient, and helped the mentor provide support to their mentee which was significant to participant progress (Matz-Costa et al.m 2018).

Long and White (2019) investigated the application of music on patients with dementia. Researchers were asked to explore musical preferences of patients, and view the effects. The researchers made use of tablets, laptops, and phones to display music videos to the patients. It was found that music had a great effect on the engagement and memory recollection of the patients. Furthermore, music as a particular means of technology was found to be an effective tool in remembering information and events. More studies can be done to consider music as a health education mechanism.

A 2019 integrative review discovered that technology is a great intervention for improving learning of older adults. Sá et al. (2019) suggest that educational technology, when guided by a theoretical framework, enhances the objectives of an educator. Results of the review indicated that software and video in individual interventions had much more positive effects than that of printed material. Importantly, Sá et al. (2019) addresses that literacy levels should be considered when implementing educational technology. In developing countries, the lower literacy levels of older adults complicates understanding of complex, advanced, and new technology. Furthermore, these interventions should be tailored toward the abilities and understanding of their target population.

To summarize, the articles agree that technology is an effective approach to health education for older adults. Technology encompasses many aspects such as videos, music, telephone calls, and cameras among others. Even though there are multiple realms to this broad concept, all of the technological interventions reviewed proved to be effective. The additional component of individualizing technological interventions for older adults was also described in the articles. This refers to tailoring programs to the needs and capabilities of older adults. As technology is a fairly recent mechanism, older adults tend to have issues when it comes to learning how to use particular electronics. Making sure these electronics are easy to use is critical to benefiting health education outcomes for this population.

INCORPORATING GAMIFICATION AND EXERGAMES

Game-based education is a strategy that aims to motivate more people to learn by incorporating fun activities into education. It can be unappealing to learn something without some sort of incentive such as winning a game. As a result, exergaming is becoming a more popular method of education. Common exergame platforms are Nintentdo Wii and Microsoft Kinect, where users can find plenty of exercise routines to follow. A 2020 systematic review discovered that exergames, or fitness-based gameplay, positively influences health outcomes in older adults. According to Pacheco et al. (2019), the interactive gameplay improved older adult adherence to virtual therapies and motivated the patients to maintain exercising in the future. Further, it can be inferred that exergames can also be effective in the sustainability of health knowledge and behaviors. Many other studies praise the use of exergaming in health education practices. Another study supported that adherence rates were higher for gaming interventions than traditional interventions (Valenzuela et al, 2019). Other forms of game-based interventions are also becoming widely accepted. Phirom et al. (2020) established that the use of an interactive physical-cognitive game-based training program reduced the fall risk of its participants. Older adults participated in a virtual game that projected onto a rubber floor mat where they would step on targets that the game showed. When compared to the control group, which learned basic health education material and fall prevention strategies, the intervention group displayed significant development in attention and performance improvement in regard to fall risk.

More traditional game-based interventions are also effective in health education for older adults. As previously stated, technology is not accessible to every person. In addition, older adults are often not prepared to utilize advanced technology as it is still a relatively new innovation. Thus, classic games that older adults are acquainted with have proven to be a successful intervention for health education. Flint et al. (2020) observed the effects of fall prevention Bingo on knowledge of fall risks and behavior change in older adults. Bingo is an interactive, face-to-face, and simple game that many older adults favor. It was discovered that fall prevention Bingo increased the participants' fall prevention knowledge and reduced fall risk within that sample (Flint et al, 2020). Therefore, tailoring interventions to fit the needs and interests of their population is critical in successful health education.

Gamification is evidently an effective strategy to keep participants motivated, entertained, and rewarded. Although the use of advanced gaming technology is a successful way of educating older adults, utilizing traditional gaming preferences such as Bingo can also prove to be favorable for this population. Game-play is a fun way to help people of all ages learn, and older adults are more likely to return for more education sessions if they had a good time. Further, they look forward to more fun the next time around.

Implementing Group-Based Education

Recent findings have demonstrated the positive effect of group-based education on older adult health education. Although the mechanics behind the photovoice method were beneficial to participants' health education, Woda et al. (2018) also determined that the discussion component of the process had a large positive effect on participants' perceptions of self-care behaviors. Sharing experiences helps people understand that they are not alone and aids the process of reflection. A systematic review in Denmark articulated the agreement of multiple studies that health education interventions with social aspects had positive effects on participants' mental health. The results of the review by Niclasen et al. (2019) indicated that older adults experience social challenges due to loss of loved ones and, as a result, they benefit from interventions that prioritize discussion and shared experiences. Other reviews identified the effect of

group education interventions. Chen et al. (2020) conducted a systematic review in which they observed the effect of multiple health education interventions on levels of blood pressure. Among the types of health education, group-education was examined. Although other interventions such as healthy lifestyle behavior counseling and self-monitoring were effective methods at lowering blood pressure in the participants, group-education was also a successful way of doing so (Chen et al., 2020). Perhaps more research can be done to investigate and compare the impact of interventions.

Another systematic review conducted in Turkey acknowledged the effectiveness of group-based interventions on the nutrition of older adults. Ilgaz & Gözüm (2019) stated that research supports eating meals with friends because it increases self-efficacy, meal satisfaction, and energy intake of participants who share meals. Thus, simple companionship can have a notable influence on specifically mental health education interventions. A randomized control trial in China found group-based interventions to be effective on self-care education. Wong et al. (2019) found that implementation of a community-based self-care program enhanced quality of life, medication adherence, and reduced the utilization of healthcare services. Ahn et al. (2017) conducted a randomized control trial in which they found that a group-based intervention increased the nutritional knowledge of adults. They highlighted a need for the implementation of more group-based programs on larger groups of participants.

In brief, group-based interventions have demonstrated an overall positive effect on health education for older adults. Older adults tend to experience loneliness due to the loss of loved ones and living alone. When education interventions emphasize discussion, icebreakers, and group activities, older adults feel less alone. Subsequently, they are more motivated to stay engaged and to come back for more education. The benefits of group-based interventions extend far beyond education for the individual. In fact, research shows it affects mental health and motivation.

LIMITATIONS

Although this study resulted in positive outcomes, few limitations exist. First and foremost, only three databases were used to conduct searches for this systematic review. With the wide array of papers that exist in multiple databases, the limited database used resulted in restriction of findings. Similarly, the limited amount of key words and descriptor terms may have barred other relevant articles and studies from being identified. Lastly, no papers in this study were published in 2020 or 2021. Further, recent studies are significant to understanding progress in education over time and, without this knowledge there exists a gap in understanding health education for these years. This may be a result of the pandemic. With the arrival of Covid-19, less studies were able to be conducted in person. Particularly, studies with older adults were difficult to accomplish because this population is most vulnerable to severe outcomes with the virus. Overall, there were few obstacles that could be overcome in the future.

CONCLUSION

There are many effective health education interventions and programs for older adults. Among these are interventions utilizing technology, game-play, and group-based education. Technology expands communication, facilitates the learning experience, and gives power to the participants. Further, the ability to control the educational process improves self-efficacy and comfortability of the participants. Gamification increases the entertainment factor of educational interventions and keeps participants engaged. Because games are fun to play, older adults learn more while being able to feel like they are not in a classroom. Finally, group-based education helps older adults feel less lonely, and therefore more engaged. Older adults want to participate in group-based discussion and share personal experiences.

Even with the use of these interventions, there are more things that can be done to further improve education for older adults. Educators can have participants produce a task list. By doing this, the older adults will visualize practical actions they can take to move forward. Another beneficial component of health education sessions is goal-setting. Setting goals helps people make plans and visualize the practicality of what they want. When goals are accomplished, people feel rewarded. When it comes to population age, other factors such as literacy levels and life experience should be considered as they often relate to age levels. Moreover, educational interventions that utilize technology should be relatively self-

explanatory and straightforward usage for participants. Tailoring programs and presentations to the needs and interests of the target population is critical in producing effective interventions.

Technology has proven to be an effective mode of health education for older adults; however, future studies need to take into account location, class, and literacy of specific populations. It is not realistic nor practical to expect that every older adult will find use of technology easy or that advanced technology is accessible anywhere. There exists a large technology gap in developing countries. Further, more research is needed to dissect technology's impact on populations elsewhere. Similarly, the practicality of using exergames is also something that can be explored in other countries as they are electronic games that are not easily accessed. It is possible that the influx of technology-based interventions, including those of exergames, may have been fueled by the pandemic. This is due to the inability to learn in person. Covid-19 may have propelled technological interventions because people were forced to interact online as their only form of education.

Finally, future studies can also explore the effect of intergenerational education on older adults. None of the studies in this review elaborated on this; however, learning life lessons via familial experience is common and may also prove to be an effective method of education.

References

Ahn, J.-A., Park, J. W., & Kim, C.-J. (2017). Effects of an individualised nutritional education and support programme on dietary habits, nutritional knowledge and nutritional status of older adults living alone. *Journal of Clinical Nursing*, *27*(9-10), 2142–2151. https://doi.org/10.1111/jocn.14068

Chen, Y., Li, X., Jing, G., Pan, B., Ge, L., Bing, Z., Yang, K., & Han, X. (2020). Health education interventions for older adults with hypertension: A systematic review and meta-analysis. *Public health nursing (Boston, Mass.)*, *37*(3), 461–469. https://doi.org/10.1111/phn.12698

Flint, J., Morris, M., Nguyen, A. T., Keglovits, M., Somerville, E. K., Hu, Y.-L., & Stark, S. L. (2020). Fall prevention bingo: Effects of a novel community-based education tool on older adults knowledge and readiness to reduce risks for falls. *American Journal of Health Education*, *51*(6), 406–412. https://doi.org/10.1080/19325037.2020.1822236

Greene, J. C., Haun, J. N., French, D. D., Chambers, S. L., & Roswell, R. H. (2019). Reduced Hospitalizations, Emergency Room Visits, and Costs Associated with a Web-Based Health Literacy, Aligned-Incentive Intervention: Mixed Methods Study. Journal of medical Internet research, 21(10), e14772. https://doi.org/10.2196/14772

Hahn, R. A., & Truman, B. I. (2015). Education improves public health and promotes health equity. *International Journal of Health Services*, *45*(4), 657–678. https://doi.org/10.1177/0020731415585986

Ilgaz, A., & Gözüm, S. (2019). Health promotion interventions for older people living alone: a systematic review. *Perspectives in public health*, *139*(5), 255–263. https://doi.org/10.1177/1757913918803980

Khong, L., Berlach, R. G., Hill, K. D., & Hill, A. M. (2018). Community Peer-Led Falls Prevention Presentations: What Do the Experts Suggest?. *The journal of primary prevention*, *39*(2), 81–98. https://doi.org/10.1007/s10935-017-0500-9

Leung, D., Chen, J., Lou, V., Wong, E., Chan, A., So, W., & Chan, C. (2017). Effects of Promotional Materials on Attitudes and Fear towards Colorectal Cancer Screening among Chinese Older Adults: An Experimental Study. *International journal of environmental research and public health*, *14*(7), 769. https://doi.org/10.3390/ijerph14070769

Long, E. M., & White, K. (2019). Using Personalized Music Playlists for Patients With Dementia as a Teaching Innovation. *Nursing education perspectives*, *40*(6), 384–385. https://doi.org/10.1097/01.NEP.0000000000000354

Marcus-Varwijk, A. E., Madjdian, D. S., de Vet, E., Mensen, M., Visscher, T., Ranchor, A. V., Slaets, J., & Smits, C. (2019). Experiences and views of older people on their participation in a nurse-led health promotion intervention: "Community Health Consultation Offices for Seniors". PloS one, 14(5), e0216494. https://doi.org/10.1371/journal.pone.0216494

Matz-Costa, C., Lubben, J., Lachman, M. E., Lee, H., & Choi, Y. J. (2018). A Pilot Randomized Trial of an Intervention to Enhance the Health-Promoting Effects of Older Adults' Activity Portfolios: The Engaged4Life Program. *Journal of gerontological social work*, *61*(8), 792–816. https://doi.org/10.1080/01634372.2018.1542371

Niclasen, J., Lund, L., Obel, C., & Larsen, L. (2019). Mental health interventions among older adults: A systematic review. *Scandinavian journal of public health*, *47*(2), 240–250. https://doi.org/10.1177/1403494818773530

Pacheco, T. B., de Medeiros, C. S., de Oliveira, V. H., Vieira, E. R., & de Cavalcanti, F. A. (2020). Effectiveness of exergames for improving mobility and balance in older adults: A systematic review and meta-analysis. *Systematic Reviews*, *9*(1). https://doi.org/10.1186/s13643-020-01421-7

Phirom, K., Kamnardsiri, T., & Sungkarat, S. (2020). Beneficial Effects of Interactive Physical-Cognitive Game-Based Training on Fall Risk and Cognitive Performance of Older Adults. *International journal of environmental research and public health*, *17*(17), 6079. https://doi.org/10.3390/ijerph17176079

Pulimeno, M., Piscitelli, P., Colazzo, S., Colao, A., & Miani, A. (2020). School as ideal setting to promote health and wellbeing among young people. Health promotion perspectives, 10(4), 316–324. https://doi.org/10.34172/hpp.2020.50

Sá, G. G., Silva, F. L., Santos, A. M., Nolêto, J. dos, Gouveia, M. T., & Nogueira, L. T. (2019). Tecnologias Desenvolvidas para a Educação em saúde de idosos na comunidade: Revisão Integrativa da Literatura. *Revista Latino-Americana De Enfermagem*, *27*. https://doi.org/10.1590/1518-8345.3171.3186

Valenzuela, T., Okubo, Y., Woodbury, A., Lord, S. R., & Delbaere, K. (2018). Adherence to Technology-Based Exercise Programs in Older Adults: A Systematic Review. *Journal of geriatric physical therapy (2001)*, *41*(1), 49–61. https://doi.org/10.1519/JPT.0000000000000095

White, M. L., Verdusco, L. M. (2018). Communicating with older adults. Home Healthcare Now, 36, 181-184. https://dx.doi.org/10.1097/NHH.0000000000000653

Woda, A., Haglund, K., Belknap, R., & Cleek, E. (2018). Photovoice: A Research Method and Intervention to Engage Older Adults. *Journal of gerontological nursing*, *44*(7), 43–49. https://doi.org/10.3928/00989134-20180614-07

Wong, A., Wong, F., & Chang, K. (2019). Effectiveness of a community-based self-care promoting program for community-dwelling older adults: a randomized controlled trial. *Age and ageing*, *48*(6), 852–858. https://doi.org/10.1093/ageing/afz095